Table of Contents

Glossary

Stunting: a child is considered stunted when its length or height-for-age z-score is more than 2 Standard Deviations (SDs) below the median compared to the WHO child growth standards.[1]

Overweight: a child is considered overweight when its weight-for-length or height z-score is more than 2 SDs above the median compared to the WHO child growth standards.[1]

Wasting: a child is considered wasted when its weight-for-length or height z-score is more than 2 SDs below the median compared to the WHO child growth standards.[1]

Anaemia: anaemia refers to haemoglobin levels below 12 g/dL for non-pregnant women in reproductive age and 11 g/dL for pregnant women.

Exclusive Breastfeeding (EBF): proportion of infants 0–5 months of age who are fed exclusively with breast milk.

Low Birthweight (LBW): defined as weight at birth less than 2500 grams.

Annual Average Rate of Reduction (AARR): is the average relative percent decrease per year in prevalence or rate. Thus, a positive sign indicates reduction or downward trend, while a negative sign indicates increase, or upward trend.

Annual Average Rate of Increase (AARI): is the average relative percent increase per year in prevalence or rate. Thus, a positive sign indicates increase or upward trend, while a negative sign indicates reduction, or downward trend.

Data sources

Stunting, overweight and wasting	UNICEF-WHO-The World Bank Joint child malnutrition estimates. *https://www.who.int/news/item/06-05-2021-the-unicef-who-wb-joint-child-malnutrition-estimates-group-released-new-data-for-2021*
Anaemia	WHO Global Health Observatory. Anaemia in women and children. *https://www.who.int/data/gho/data/themes/topics/topic-details/GHO/gho-anaemia-in-women-and-children* Methods: Stevens GA et al. Global, regional, and national trends in haemoglobin concentration and prevalence of total and severe anaemia in children and pregnant and non-pregnant women for 1995-2011: a systematic analysis of population-representative data. The Lancet Global Health 2013;1:e16-e25.
Exclusive breastfeeding	UNICEF global databases – Infant and Young Child Feeding. *https://www.unicef.org/topics/infant-and-young-child-nutrition*
Low birth weight	UNICEF-WHO Joint Database on Low birth weight. *https://data.unicef.org/topic/nutrition/low-birthweight* *https://www.who.int/data/gho/data/indicators/indicator-details/GHO/low-birth-weight-prevalence-(-)*

[1] WHO Multicentre Growth Reference Study Group (2006) WHO Child Growth Standards based on length/height, weight and age. Acta Paediatrica Suppl 450, 76–85.

Technical notes

Report year: From 2015, the tool will report on estimates based on data from the precedent year. Thus, the report year will correspond to the previous year of the updated version or edition.

Country data periods: For child wasting and exclusive breastfeeding the present version of the tool uses survey data from 1999 onwards; while for the remaining indicators the tool includes model-based data from 2000.

Baseline year

The baseline for a country:

The baseline reference year for the global targets is 2012. The country baseline estimates, however, are based on the latest available survey estimates within the period 2005-2012 for wasting and exclusive breastfeeding, and latest model-based available estimate up to the year 2012 for the remaining indicators.[2,3,4]

For countries with no survey data available between 2005 and 2012 for wasting or exclusive breastfeeding, the first available survey after 2012 will be considered as baseline. In all cases, the exact year of the baseline estimate is taken into consideration for calculating current or required rates of progress.

Whenever an estimate that refers to a year closer to the baseline year of 2012 becomes available, or for some reason is modified, the tool will update the baseline for the specific country accordingly.

Baseline prevalence estimates for global:

The baseline reference year for the global targets is 2012. Global estimates are updated regularly by custodian agencies and .

The global estimates are based on model exercises that are carried out frequently. As a result, whenever updates become available, the baseline values will be updated according to the most recent data.

Baseline number affected:

The numbers of children under 5 years who are stunted, overweight or wasted, and the numbers of anaemic women in reproductive age (15 to 49 years) are derived multiplying the baseline prevalence estimates by the corresponding population estimates referent to the baseline year from the World Population Prospects (WPP), 2015 revision[5] (to be updated regularly).

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[2] McLain A, Frongillo E, Feng J and Borghi E, 'Prediction intervals for penalized longitudinal models with multisource summary measures: an application to childhood malnutrition', Statistics in Medicine, vol. 38, no. 6, March 2019, pps. 1002–1012, <https://doi.org/10.1002/sim.8024> accessed April 2021.

[3] Stevens GA et al. Global, regional, and national trends in haemoglobin concentration and prevalence of total and severe anaemia in children and pregnant and non-pregnant women for 1995-2011: a systematic analysis of population-representative data. Lancet Glob Health 2013;1:e16-e25.

[4] Blencowe H, Krasevec J, de Onis M, Black R E, An X, Stevens G A, Borghi E, Hayashi C, Estevez D, Cegolon L, Shiekh S, Hardy V P, Lawn J E, Cousens S. National, regional, and worldwide estimates of low birthweight in 2015, with trends from 2000: a systematic analysis. Lancet Glob Health 2019; published online May 15. *http://dx.doi.org/10.1016/S2214-109X(18)30565-5*.

[5] United Nations, Department of Economic and Social Affairs, Population Division (2015) World Population Prospects: the 2015 Revision. CD-ROM Edition.

For the estimation of anaemia in pregnant women, the women population (15 to 49 years) is multiplied by the estimated percent of pregnant women, also available in the WPP. The population of non-pregnant women is calculated as the difference between the women population and the population of pregnant women.

For exclusive breastfeeding, the population of infants under 6 months of age is currently estimated by the number of births (alive) for the specific year, provided by the same publication. The same number of births is used for low birthweight.

! Note: for countries with no available population estimates from the source above, their estimated population were imputed as: a thousand children under 5 years, a thousand births per year, and ten thousand women of reproductive age. At present, such imputations apply to: Andorra, Cook Islands, Dominica, Liechtenstein, Marshall Islands, Monaco, Nauru, Niue, Palau, Saint Kitts and Nevis, San Marino, Tokelau and Tuvalu.

Current trend

The current Annual Average Rate of Reduction (AARR) for stunting, overweight, anaemia and low birthweight is calculated based on model-based data between the baseline year 2012 and the latest, considered as the "recent trend" period, using a log-linear regression (exponential growth model). That is,

$$AARR = 1 - \exp(\beta),$$

, where β is the slope in the model Y=a+ β*X, Y is natural logarithm of the prevalence and X the survey year (X).[6]

The current Annual Average Rate of Increase (AARI) for exclusive breastfeeding (EBF) is calculated based on available survey data between the starting year 2008 and the latest, considered as the "recent trend" period, using a log-linear regression (exponential growth model). That is,

$$AARI = \exp(\beta) - 1,$$

where β is the slope in the model Y=a+ β*X, Y is natural logarithm of the prevalence and X the survey year (X).[6]

! The AARR(I) is an average annual rate of progress, refers to the whole period in question. Some countries may observe heterogeneous rates of progress during sub-periods not reflected by the average. ! Given important fluctuations observed for exclusive breastfeeding, projections based on two points only were many times unrealistic. Therefore, for these indicators, current AARI were provided only when the number of points within the "recent trend" period was greater than two.

Target year 2025

Required AARR: The required AARR, if global target applied, from the latest prevalence, a selected starting year (what-if analysis display on gage), or from the baseline year, year labelled as *t*, to reach the target prevalence for year 2025 (*t+n*) – *n* years apart – is given by

$$AARR = 1 - (P_{t+n} / P_t)^{(1/n)},$$

where P_{t+n} is the target prevalence and P_t is the starting one.

Starting year for required AARR calculation can be:

[6] UNICEF Division of Policy and Practice, Statistics and Monitoring Section (2007) Technical Note: How to calculate Average Annual Rate of Reduction (AARR) of Underweight Prevalence. UNICEF: New York. http://www.childinfo.org/files/Technical_Note_AARR.pdf.

- the baseline year as displayed in the top summary table – Target 2025
- a selected post-baseline starting year in the what-if analysis gauge
- the latest survey/estimate year in the Target indicators progress table (see Tracking Tool Module 3 – Global and regional).

! It is important to remember that the six World Health Assembly (WHA) targets were endorsed at global level. Countries are encouraged to set their own targets based on the country's priorities and resources available to outline their contributions towards the global targets. The objective of the" What-if" analysis is to help countries look at possible scenarios selecting different rates of progress towards 2025 or selecting a different target prevalence.

Required AARI for exclusive breastfeeding (EBF): is the required average annual rate of increase to reach the target (see below), starting from a specific year. Countries can adopt the global targets as their national ones but can also choose a different target given the country context. The tool default setting specifies a required AARI that is aligned with the global target definition (see below), but the What-if scenarios provide the required AARI for targets different from the global. The required AARI is calculated from the starting year (as above).

For a starting year *t*, to reach the target rate for year 2025 (*t+n* or *n* years apart), the required AARI is given by $(P_{t+n} / P_t)^{(1/n)} - 1$, where P_{t+n} is the target rate for 2025 and P_t is the starting one.

Target EBF rate: The process for translating global targets to national level was reviewed by a group of experts in nutrition monitoring and evaluation (the Joint WHO-UNICEF Technical Expert Advisory Group on Nutrition Monitoring). For the exclusive breastfeeding (EBF), the group recommended that the country-level targets were calculated based on the rates of non-exclusive breastfeeding (NEBF=100-EBF). This ensures, as for stunting and other four targets based on reduction, that greater reduction is required for countries with higher rates of NEBF (i.e. greater increase for those with lower EBF rates).

At global level, to increase EBF rates from 38% (in 2012) to 50% in 2025, it is equivalent to reduce NEBF rates from 62% to 50%, or 20% reduction. However, this target was considered unaspiring by the group, and a 30% reduction was proposed instead. For this reduction over 13 years (between 2012 and 2025), a yearly relative reduction rate of $\approx$ 2.71% is required.

The target rate for 2025 is given by

$$P_{t+n} = 100 - (100 - P_t) * (1-0.0271)^n,$$

where P_{t+n} is the target EBF rate for 2025, P_t is the baseline EBF rate and n is the number of years between baseline and 2025.

Prevalence at year 2025: the projected prevalence for year 2025 is derived from a specific starting year *t* that is *n* years apart from 2025 (*t+n*), using the formula

$$P_{t+n} = P_t * (1-AARR)^n$$

! Note that the AARR used is the current AARR for current trend projections, and the required AARR for target projections. If current AARR is not available for a country, no projection with the current trend is provided.